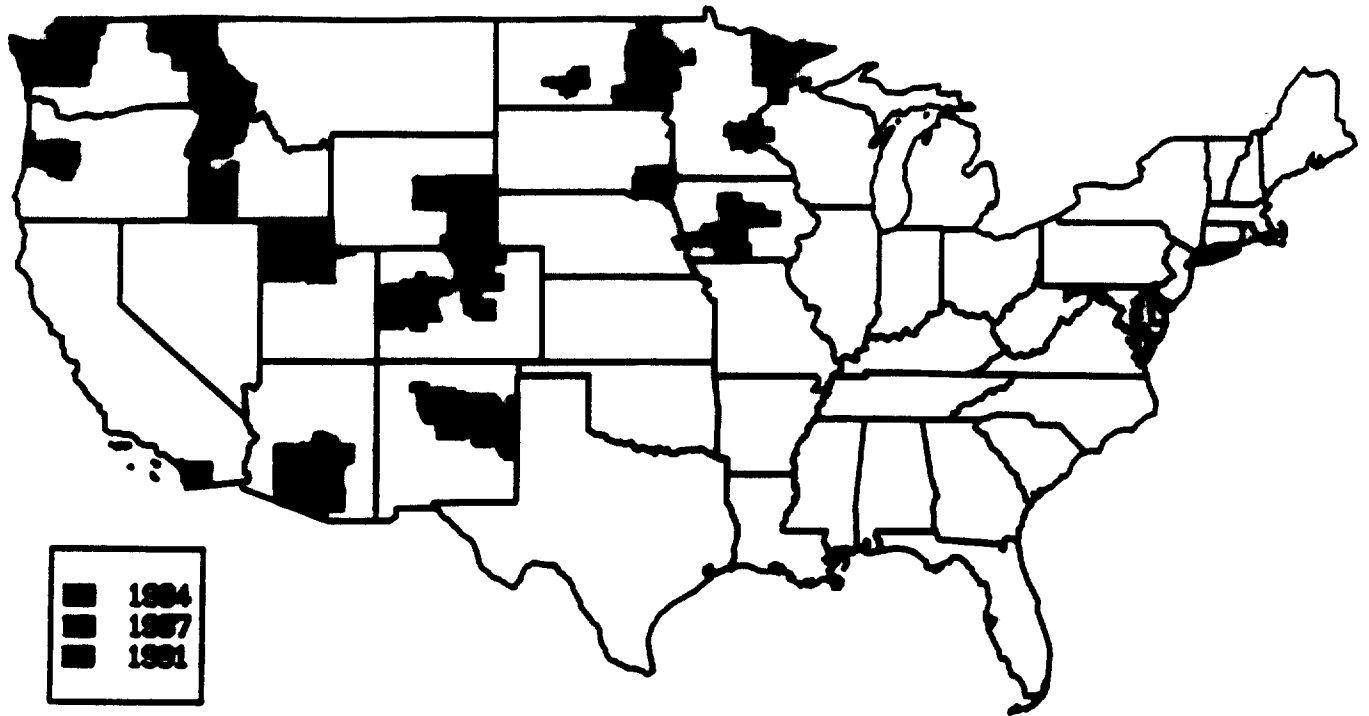


Map 1.4(e). Development of Pacific Telesis's Cellular Coverage.
Map 1.4(f). Development of Southwestern Bell's Cellular Coverage.



Map 1.4(g). Development of US West's Cellular Coverage.

Other RHCs have confined their cellular operations entirely to their own regions. Ameritech inherited the first experimental cellular system in Chicago;¹⁰⁹ since divestiture it has concentrated its cellular operations in-region.¹¹⁰ NYNEX has likewise restricted most of its cellular operations to its northeast territories. Bell Atlantic, unlike other RHCs, was the latecomer to its first major cellular market in Washington, D.C.; a rival system developed under an experimental license and operated by American TeleServices Inc., The Washington Post Co., Graphic Scanning Corp., Metromedia Inc., Metrocall, and Metropolitan Radio Telephone System was up and running first.¹¹¹ Since then Bell Atlantic has also developed cellular operations primarily within its own region,¹¹² although its recently announced purchase of Metro Mobile would add 17 out-of-region systems.¹¹³

Others. Other companies, both telcos and non-telcos, have carved out regional niches that continue to grow successfully.

* Centel, in 1984, was a diversified local telco serving 1.3 million access lines, over 263,000 cable subscribers, and more than 134,000 electricity customers.¹¹⁴ By 1987, it was operating eight cellular systems and had limited interests in four others.¹¹⁵ It

¹⁰⁹63 F.C.C.2d 655.

¹¹⁰The closing of Ameritech's recently announced acquisition of CyberTel, expected in late 1991, will give Ameritech control of the non-wireline licenses in St. Louis and several Missouri and Illinois RSAs. Ameritech will also acquire CyberTel's properties in Hawaii and the Virgin Islands. *Carnegie, Ameritech to Buy Cellular Operation For \$512 Million*, WALL ST. J., May 29, 1991, at A4, col. 3.

¹¹¹*Mayer, Bell Atlantic Launches Mobile Phones*, WASHINGTON POST, Apr. 11, 1984, at F6; *Going Mobile; Bell Atlantic Mobile Sets April 2 for Washington Cellular Service*, COMMUNICATIONS DAILY, Feb. 17, 1984, at 3; *Bell Atlantic Marks Startup of Cellular Telephone Sales*, DAILY REPORT FOR EXECUTIVES, Apr. 11, 1984, at A-2. This system was acquired by Southwestern Bell in 1987. SOUTHWESTERN BELL CORP., 1986 ANNUAL REPORT 24 (1987).

¹¹²Currently, Bell Atlantic has a limited interest in New York City, however. DONALDSON, LUFKIN & JENNETTE, *THE CELLULAR COMMUNICATIONS INDUSTRY* 60 (Winter 1990-91).

¹¹³CTIA, *STATE OF THE CELLULAR INDUSTRY* 16 (1991); *Burgess, Bell Atlantic to Acquire New York Cellular Firm for \$2.5 Billion*, WASHINGTON POST, Sept. 25, 1991, at C1.

¹¹⁴CENTEL CORP., 1984 ANNUAL REPORT 6, 12, 17 (1985). It was also involved in telecommunications equipment distribution, network installation, and videotex. Its gross revenues from all sectors totalled \$1.4 billion. Its non-telephone interests accounted for a little more than 42 percent of its overall revenues. In its annual report, it listed videotex and cellular as "new ventures." *Id.* at 1, 18. Centel finalized the sale of its cable systems in 1989 for an aggregate gross price of \$1.4 billion and reached a definitive agreement, in 1990, to sell its electric power sector. *Id.* at 28; *Centel Announces Quarterly Revenues, Earnings*, PR NEWswire, Jan. 23, 1991.

¹¹⁵CENTEL CORP., 1987 ANNUAL REPORT 23 (1988).

acquired another 21 cellular properties in 1988;¹¹⁶ by year end it was operating systems in 40 service areas, the second highest total in the industry.¹¹⁷ Centel has since moved aggressively to develop service in rural areas.¹¹⁸ MAPS 1.5, 1.6(A)-(B).

* Metro Mobile, a company whose core business is cellular service, went public in 1986.¹¹⁹ By year-end 1988, it was operating in 16 MSAs clustered primarily in the Northeast and Southwest.¹²⁰ Within two years it was operating systems in 17 MSAs serving 140,000 subscribers, half of them in a northeast cluster of service areas that straddles the I-95 corridor.¹²¹ MAP 1.7.

* Vanguard had majority interests in 15 MSAs in 1988;¹²² by 1990 it was operating systems in 18 MSAs serving a total population of more than 5 million.¹²³ The company's flagship cluster is a Pennsylvania "supersystem" that integrates a contiguous 11,000 square mile area and is closely linked to the major population centers of Baltimore-Washington, Philadelphia, and New York.¹²⁴ MAP 1.8.

¹¹⁶Oloroso, *Centel Corp. Gets On-line; Selling Utility Unit Sparks More Investor Interest*, CRAIN'S CHICAGO BUS., Dec. 17, 1989, at 38.

¹¹⁷CENTEL CORP., 1988 ANNUAL REPORT 21 (1989).

¹¹⁸By year-end 1990, it was already operating systems in six RSAs and expected to manage systems in an additional fifty-seven. *Centel Announces Quarterly Revenues, Earnings*, PR NEWswire, Jan. 23, 1991.

¹¹⁹METRO MOBILE CTS, 1990 ANNUAL REPORT (1991).

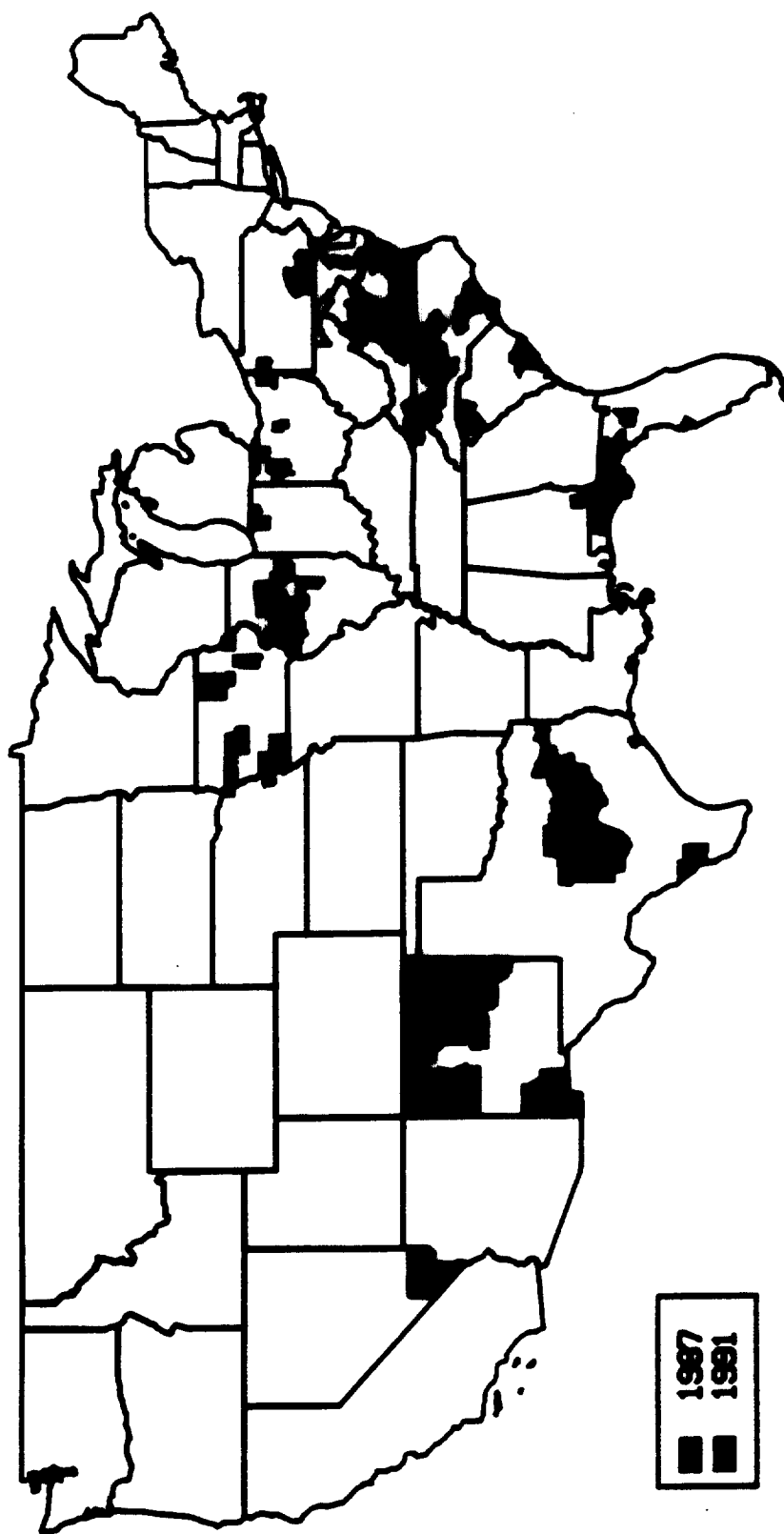
¹²⁰METRO MOBILE CTS, 1988 ANNUAL REPORT 12 (1989). As noted earlier, Metro Mobile has announced its intention to sell its properties to Bell Atlantic; Ramirez, *Bell Atlantic to Buy Metro Mobile*, N.Y. TIMES, Sept. 25, 1991, at D1.

¹²¹METRO MOBILE CTS, 1990 ANNUAL REPORT (1991).

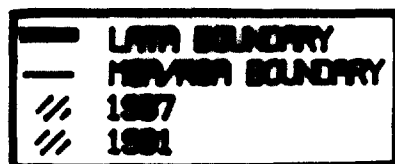
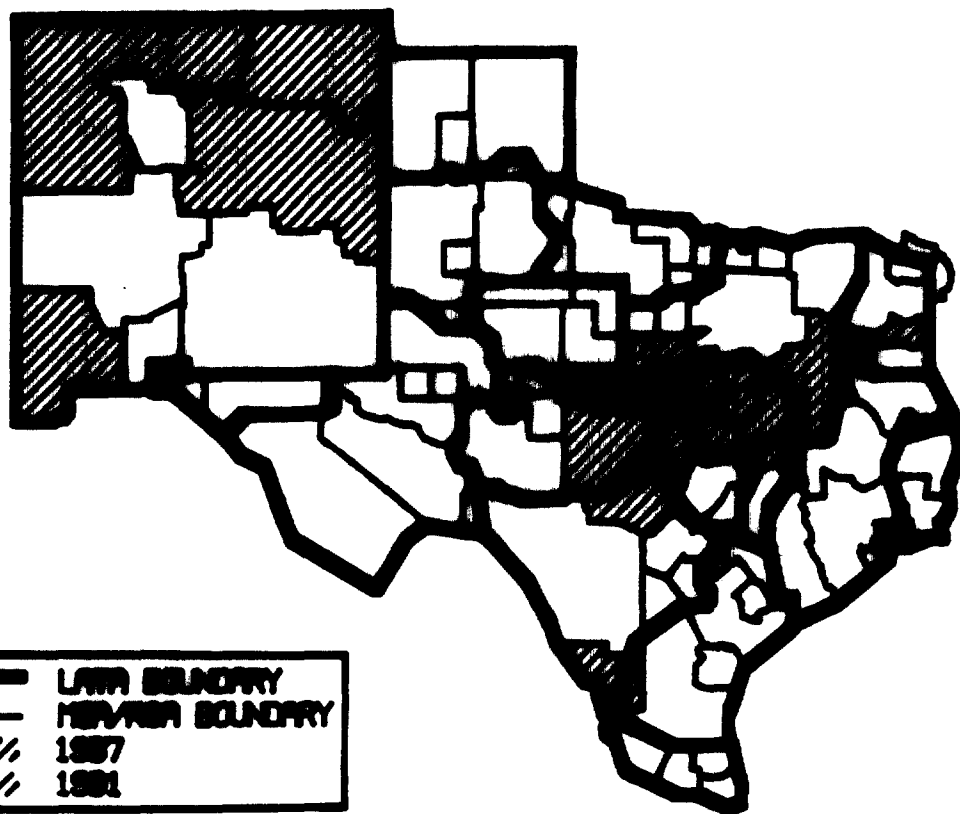
¹²²VANGUARD CELLULAR SYS., INC., 1988 ANNUAL REPORT 3 (1989).

¹²³CTIA, STATE OF THE CELLULAR INDUSTRY 15 (Spring 1990).

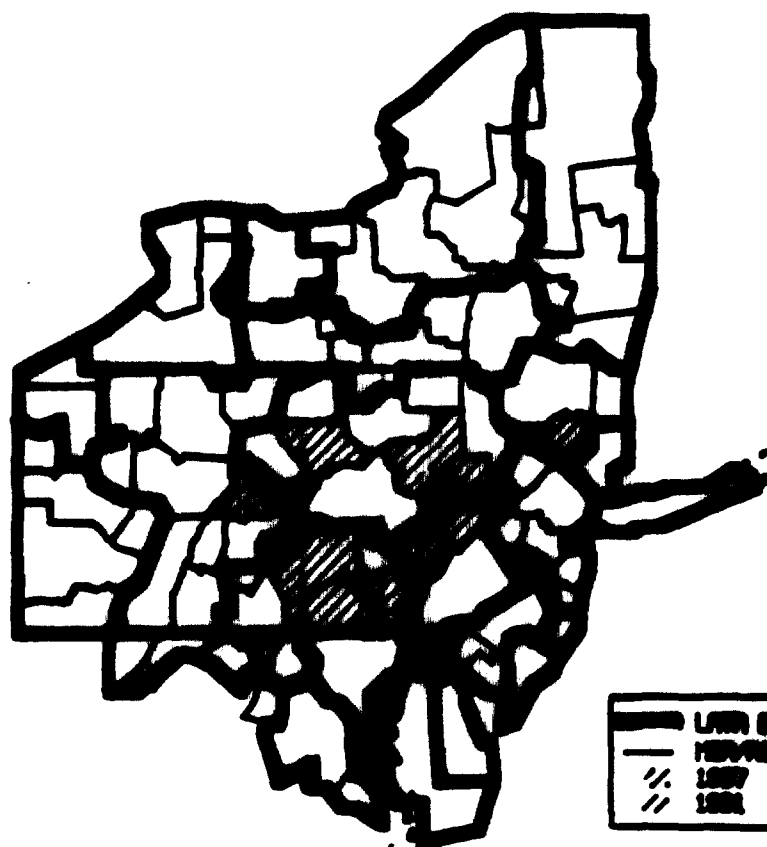
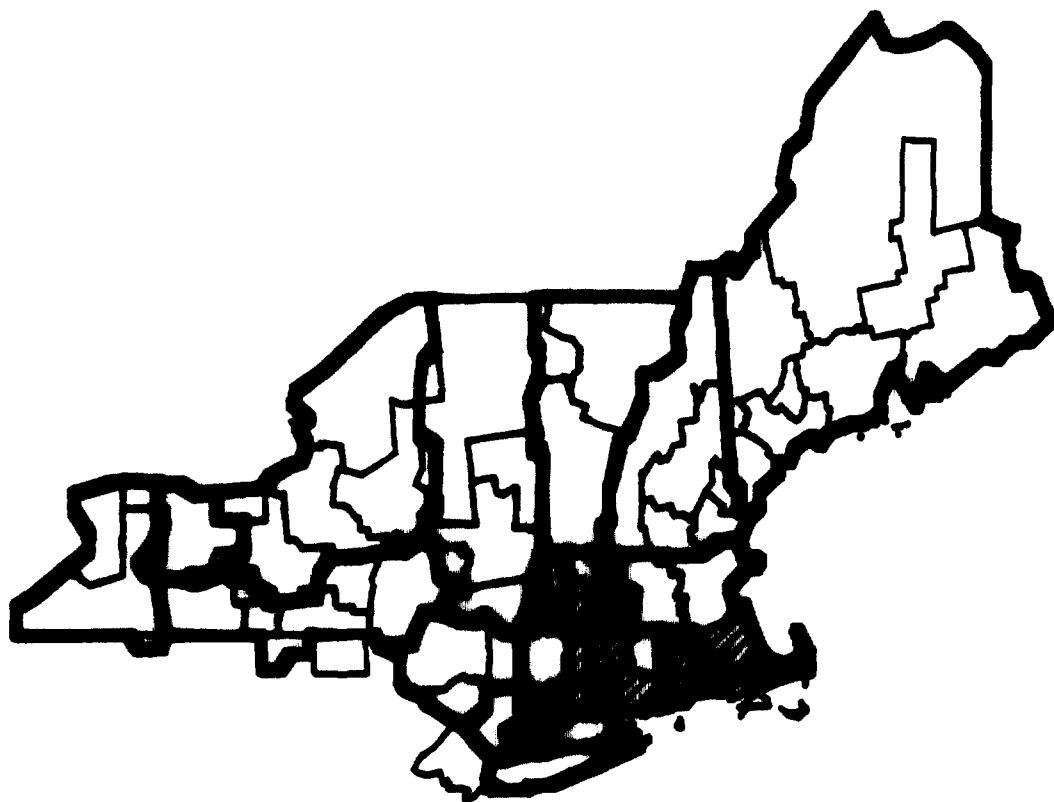
¹²⁴VANGUARD CELLULAR SYS., INC., 1989 ANNUAL REPORT 7 (1990).



Map 1.5. Development of Centel's Cellular Coverage.



Map 1.6(a). Centel's Virginia Cluster.
Map 1.6(b). Centel's Texas Cluster.



Map 1.7. Metro Mobile's Northeast Cluster.

Map 1.8. Vanguard's Pennsylvania Supersystem.

* ALLTEL, another independent telco,¹²⁵ started with one cellular system in 1984 (and interests in 10 others);¹²⁶ by 1990 it was operating systems in 9 MSAs, and was either operating or building systems in an additional 23 RSAs.¹²⁷ MAP 1.9.

* SNET, which serves landline customers in Connecticut,¹²⁸ received its first cellular license -- for Hartford -- in 1984.¹²⁹ By the spring of 1990 it was operating a system composed of five MSAs and two RSAs that covered the entire state of Connecticut and a portion of South Central Massachusetts.¹³⁰ MAP 1.10.

* Century Telephone Enterprises entered the cellular industry in 1984 with a minority interest in Detroit.¹³¹ In 1987, it sold its cable television properties in order "to finance the continued expansion of Century's cellular and paging ventures."¹³² By Spring 1990, it was operating 12 MSAs and 16 RSAs, clustered in the Upper Midwest and Southwest.¹³³ MAPs 1.11(A)-(B).

¹²⁵With the 1983 merger between ALLTEL, Mid-Continent Telephone Corp., and Allied Telephone Co. ALLTEL became a major player in the industry. In 1984, the company's "first full year," it served 885,000 local lines. The company was also involved in the installation and maintenance of telecommunications equipment and paging and was cautiously entering fiber optics and satellite services. ALLTEL CORP., 1984 ANNUAL REPORT 2-3 (1985).

¹²⁶ALLTEL CORP., 1984 ANNUAL REPORT 12-13 (1985). By the fall of 1988 it held licenses in 7 MSAs serving a population of over two million. ALLTEL CORP., 1988 ANNUAL REPORT 12 (1988); CTIA, STATE OF THE CELLULAR INDUSTRY 16 (Fall 1988).

¹²⁷CTIA, STATE OF THE CELLULAR INDUSTRY 18 (1991).

¹²⁸See, e.g., SNET, 1984 ANNUAL REPORT 6 (1985). It also supplies network services and communications equipment and publishes its own directories. *Id.* at 12-16.

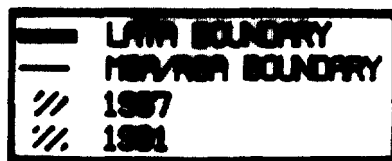
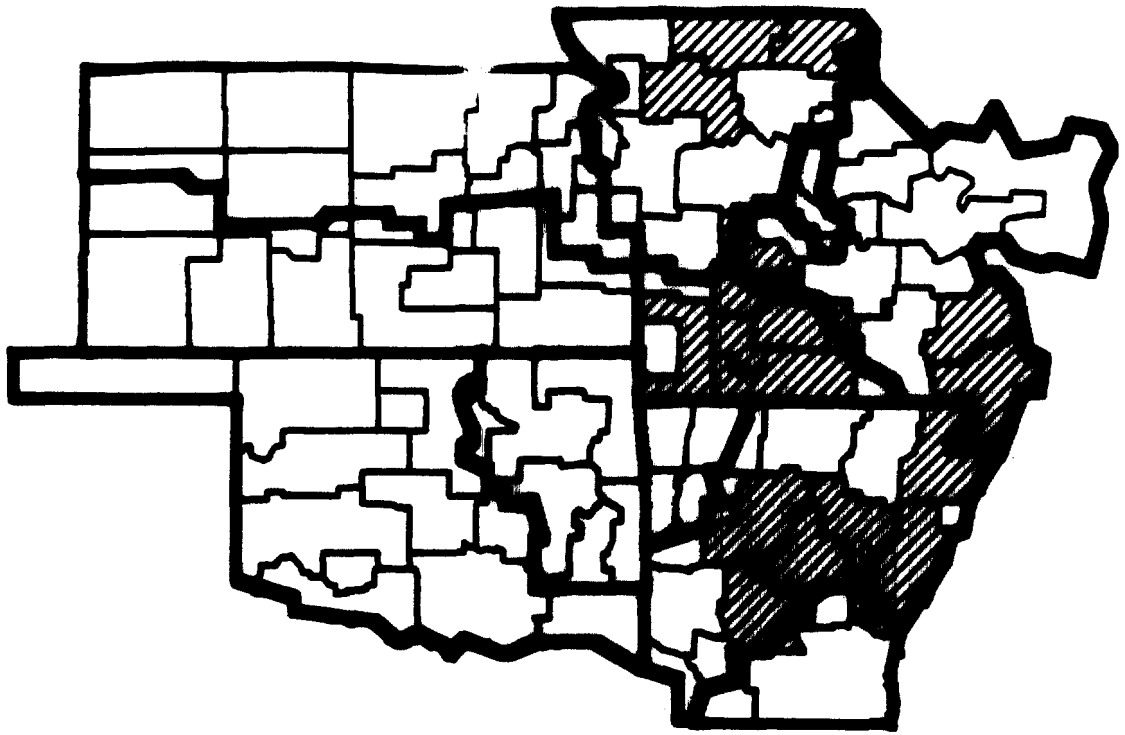
¹²⁹*Id.* at 14; FCC, STATUS OF MSA CELLULAR LICENSES 11 (Jan. 24, 1991).

¹³⁰CTIA, STATE OF THE CELLULAR INDUSTRY 16 (Spring 1990).

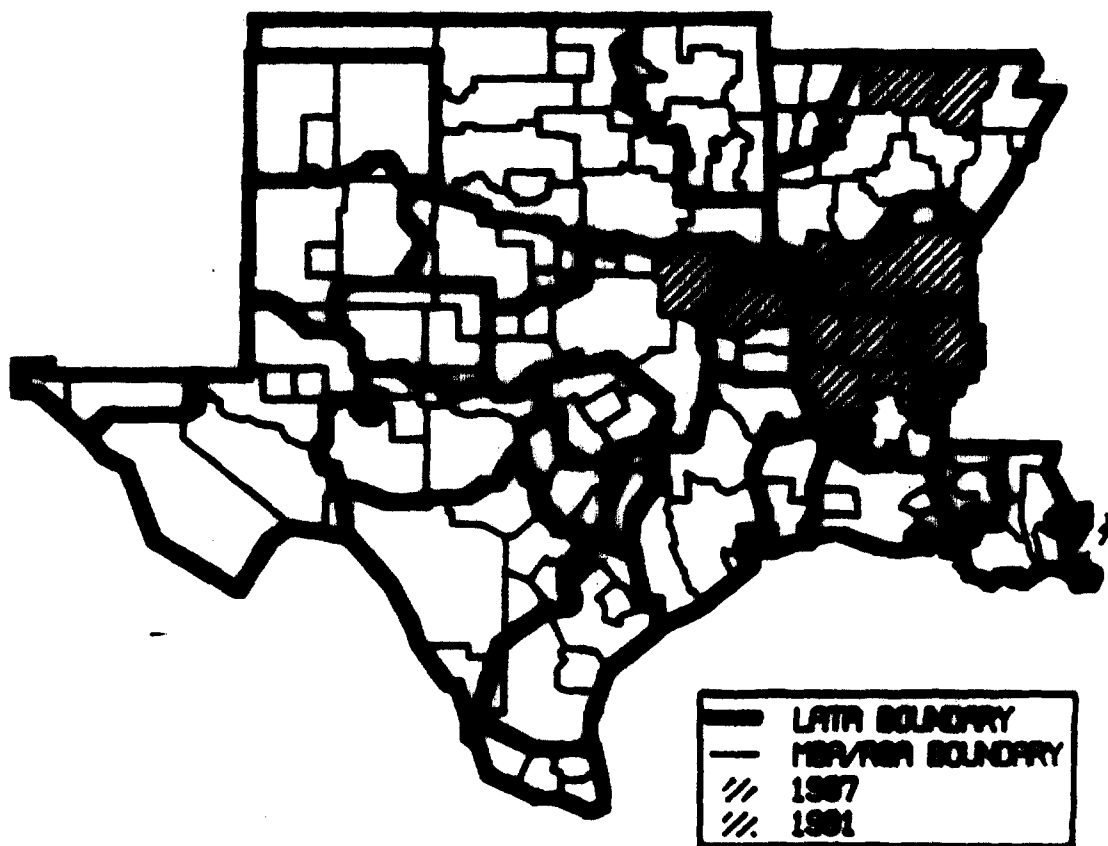
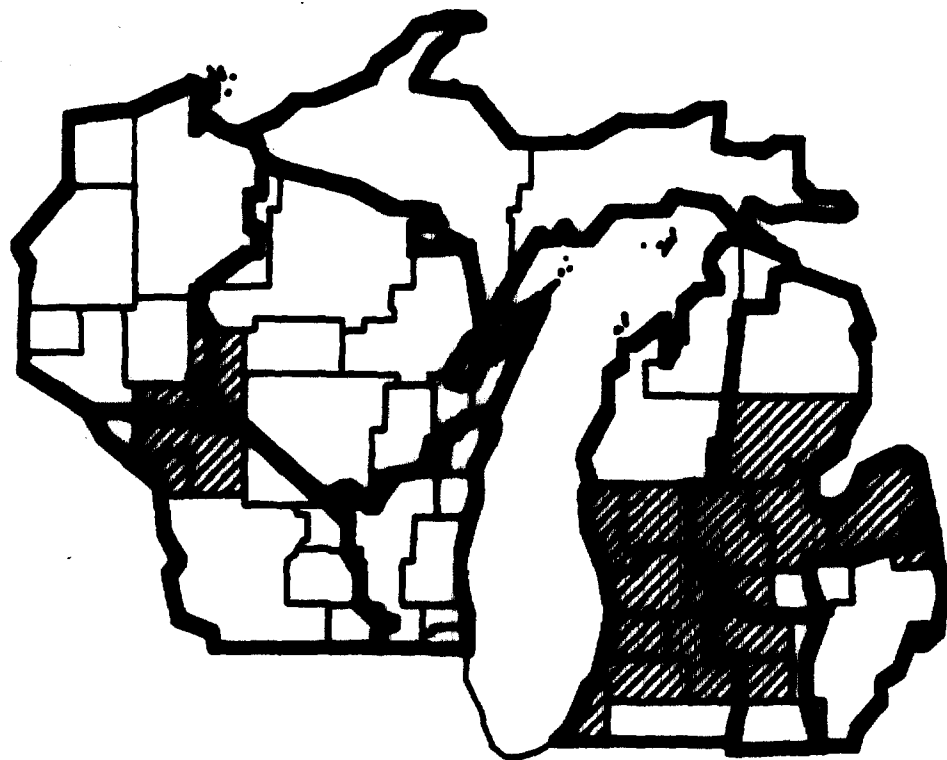
¹³¹CENTURY TEL. ENTERPRISES, INC., 1984 ANNUAL REPORT 16 (1985).

¹³²CENTURY TEL. ENTERPRISES, INC., 1987 ANNUAL REPORT 2 (1988).

¹³³CTIA, STATE OF THE CELLULAR INDUSTRY 18 (Spring 1991).



Map 1.9. ALLTEL's Sun Belt Cluster.
Map 1.10. SNET's Connecticut Cellular System.



Map 1.11(a). Century Telephone Enterprises' Michigan and Wisconsin Cluster
Map 1.11(b). Century Telephone Enterprises' Southwestern Cluster.

Wireline vs. Non-wireline Competition

Telco affiliates have contributed much to the evolution of the cellular industry. The Bell System originated the very concept of cellular telephony, which marked a critical technological breakthrough in spectrum management.¹³⁴ A GTE affiliate was the first operator of an RSA system in the nation and the first cellular carrier to provide service to rural customers in Florida.¹³⁵

This wireline participation in mobile markets was not merely tolerable but "very much in the public interest," according to the FCC, because wirelines would get their systems up and running and bring a wealth of experience and technical expertise to these markets.¹³⁶ The wirelines have produced "[m]uch of the successful research and development in the mobile field over the years."¹³⁷ In the cellular context, the Commission has praised the wirelines as "the only organizations which have demonstrated that they possess the resources and the expertise necessary to establish cellular systems which would have nationwide compatibility."¹³⁸ The Commission described AT&T as "the primary proponent and developer of cellular technology in this country"¹³⁹ while also recognizing "the expertise of the independent telephone companies in traffic engineering and the establishment of high capacity local switching networks."¹⁴⁰ The RHCs' expertise is particularly advantageous in cellular systems "because of the need to tie together various transmitters in a cellular system and to distribute and revise frequency

¹³⁴AT&T first proposed that spectrum be allocated for a broad-band high-capacity mobile system in 1940. 86 F.C.C.2d at 488. The Commission did not act on this request until 1988. *Ibid.*; *An Inquiry Relative to the Future Use of the Frequency Band 808-880 MHz*, 14 F.C.C.2d 311, 313-315 (1988). By 1947, AT&T's Bell Laboratories had developed the concept of cellular communications, although the technology for implementing it did not yet exist. *AT&T Enters into Agreement with Southwestern Bell Mobile Systems*, *BUSINESS WIRE*, July 2, 1980; *Huff, Cellular Radio*, *TECHNOLOGY REV.*, Nov. 1983, at 53. By 1982, AT&T had developed an experimental cellular system. *AT&T Enters into Agreement with Southwestern Bell Mobile Systems*, *BUSINESS WIRE*, July 2, 1980.

¹³⁵GTE Mobilnet Introduces Cellular Service to Florida's First Rural Service Area with Activation of Hardee RSA, *PR NEWswire*, July 24, 1980; *COMMUNICATIONS DAILY*, Aug. 3, 1980, at 9.

¹³⁶86 F.C.C.2d at 488, 489. In 1982, for example, the FCC decided to continue reserving a block of spectrum for telco affiliates because it "remain[ed] convinced that a separate allocation constitutes the most practical, and quite possibly the only, way to achieve the Commission's twin goals of making quality mobile telephone service available to the public as rapidly as possible while promoting competition whenever feasible." *An Inquiry Into the Use of the Bands 825-845 MHz & 870-890 MHz for Cellular Communications Sys.*, 89 F.C.C.2d 58, 70 (1982).

¹³⁷86 F.C.C.2d at 488.

¹³⁸*An Inquiry Relative to the Future Use of the Frequency Band 808-880 MHz*, 46 F.C.C.2d 752, 760 (1974).

¹³⁹89 F.C.C.2d at 71.

¹⁴⁰*Ibid.*

arrangements among the various cells in a system."¹⁴¹ Wirelines can "rely on the [RHCs'] expertise and knowledge about their individual service areas to more quickly make quality cellular service available to their communities."¹⁴²

In sum, the RHCs have proved to be robust competitors in the market. But they have neither dominated nor suppressed their rivals. Many cellular concerns associated with telcos were handed an advantage at the outset -- they often were awarded their licenses first, and in those cases were up and running before the competition. But by 1987, most if not all non-wireline licensees had overcome the headstart of the wireline providers. By any measure -- territory covered, subscribers served, revenues generated -- the RHCs long ago lost whatever initial edge they enjoyed. The seven RHCs combined serve half of all cellular subscribers; the largest RHC cellular affiliate serves only 12.9 percent of subscribers nationwide. And the cellular penetration rate for non-wireline carriers -- the number of subscribers per hundred persons in each service area -- is now comparable to that for wireline carriers. TABLE 1.7.

¹⁴¹ *Ibid.*

¹⁴² *Ibid.* The district court has likewise acknowledged, on at least a few occasions, that RHC affiliates have been procompetitive forces in the cellular market. For example, the court noted the competitive effect of permitting the RHCs to offer cellular services:

the Regional Companies * * * have shown themselves to be aggressive competitors with one another in the many markets they have entered and those that they seek to enter. Absent evidence to the contrary, it may appropriately be assumed that any Regional Company which comes into possession of a nonwireline cellular company outside of its own area will compete vigorously against the local Regional Company holding the wireline franchise.

* * * * *

[T]he entry of Regional Companies into cellular communication may actually accelerate the development of the cellular technology and enhance competition in the local telephone market.

1988-1 Trade Cas. (OCH) at 62,059 (citations omitted). In its September 1980 decision, the court noted that any further hold up in permitting RHC affiliates to provide various types of intersystem coordination "would stifle advances in cellular services." *United States v. Western Elec. Co.*, 1980-2 Trade Cas. (OCH) ¶ 69,177, at 64,453 (D.D.C. 1980) (citation omitted).

Table 1.7. Estimated Cellular Penetration Rates 1990.	
Company	Penetration Rate (%)
Wireline	
Ameritech	1.54
Bell Atlantic	1.67
BellSouth	1.64
NYNEX	1.05
Pacific Telesis	1.43
Southwestern Bell	2.00
US West	1.15
ALLTEL	1.37
Centel	1.34
ConTel	1.26
GTE	1.60
SNET	1.47
Non-Wireline	
Associated Communications	1.75
Cellular Communications	1.39
Comcast	1.86
LIN	1.27
McCaw	1.20
Metro Mobile CTS	1.37
Metromedia	1.32
Radiolone	1.15
Vanguard	1.17
Source: Christmas 1990: Cellular Hopes It's A Merry One, CELLULAR INVESTOR, Dec. 20, 1990, at 4.	

In every service area, non-wireline carriers have proved capable of competing with the local telco.¹⁴³ For example, officials at Radiophone, owners of the non-wireline license in New Orleans, estimate that the company has about 60 percent of that service area.¹⁴⁴

The development of competition in the Los Angeles service area illustrates the wider trends. When Los Angeles Cellular Telephone, jointly controlled by BellSouth and McCaw, acquired the non-wireline license in 1987, PacTel was already well-established and serving more than twice as many customers. Subscribership has more than doubled since then, and the gap has narrowed steadily. LA Cellular has now captured over 43 percent of the business. TABLE 1.8. And in Baltimore-Washington, the wireline carrier

¹⁴³The same is true in paging. See pg. 19 and TABLE 1.3, *supra*.

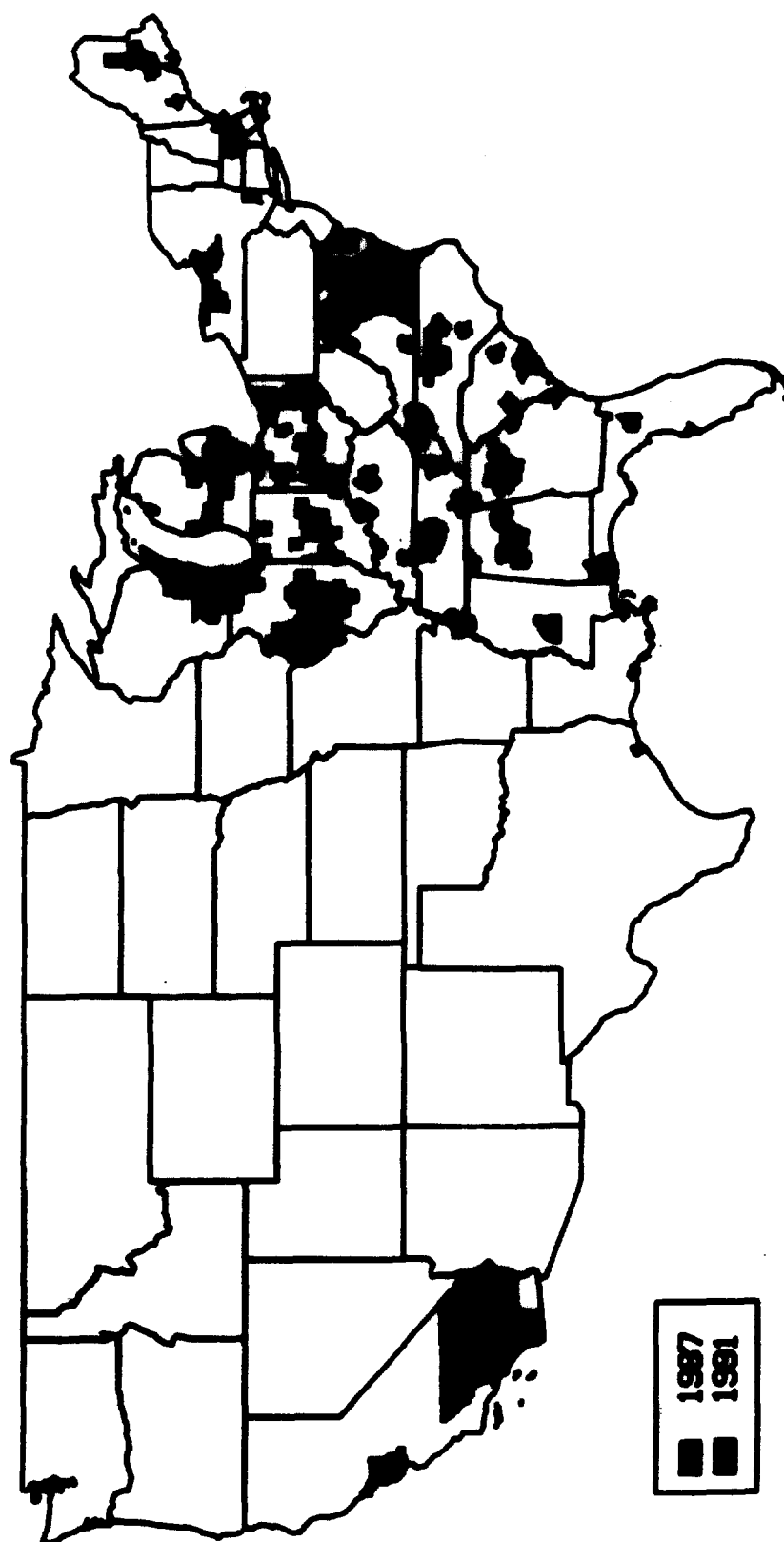
¹⁴⁴Metrodt, *Radiolone: A Near Fledgling Blossoms Into Market Leader*, NEW ORLEANS CITY BUS., Nov 5 1990, § 1, at 14.

(Bell Atlantic) is in the lead, but with only 53 percent of subscribers to Southwestern Bell's 47 percent.¹⁴⁸

Table 1.8. Cellular Subscribers in Los Angeles (%).				
	1987	1988	1989	1990
LA Cellular (BellSouth/McCaw)	31.0	36.0	41.2	43.5
Pacific Telecels	69.0	64.0	58.8	56.5
Total	126,000	209,000	292,000	329,000
Source: Takahashi, <i>PacTel Cellular Takes a Gamble on Technology</i> , L.A. TIMES, Aug. 26, 1990, at D1, col. 5 (1989 and 1990 figures are estimates). PacTel had almost a three year headstart in the Los Angeles market. CTIA, STATE OF THE CELLULAR INDUSTRY 52 (Spring 1990).				

The BellSouth/PacTel competition in Los Angeles and the Bell Atlantic/Southwestern Bell competition in D.C. illustrate a second point: telco-affiliated cellular companies have not hesitated to operate non-wireline licenses in direct competition with other telcos. MAP 1.12, TABLE 1.9. Thus, cellular concerns owned by GTE/Centel compete in numerous service areas against three of the RHC affiliates. Centel competes with Centel in Virginia. PacTel's cellular affiliate competes against Ameritech's, BellSouth's, Southwestern Bell's, and US West's; BellSouth's against PacTel's and Ameritech's; Southwestern Bell's against Ameritech's, Bell Atlantic's, NYNEX's, and PacTel's; Ameritech's against BellSouth's, PacTel's, and Southwestern Bell's. Nearly half of BellSouth's cellular operations, and over half of Southwestern Bell's, are non-wireline. In 1988, five areas were served by competing telcos; that number had increased to 38 by mid-1991. FIGURE 1.8.

¹⁴⁸Hall, *At Atlanta: Former Pilot Steers Cellular One Through Growth*, WASHINGTON BUS. J., Apr. 30, 1990, § 1, at 19. Together they serve approximately 200,000 subscribers, up from 120,000 in 1988. *Ibid.*



Map 1.12. Growth of Cellular Competition Between Telephone Companies.

Table 1.9. RHCs Out of Region.

Region	1986	1987	1988	1989	1990	1991
Bell Atlantic	New York, NY*					
BellSouth		Gary, IN* Honolulu, HI* Houston, TX** Indianapolis, IN Los Angeles, CA** Milwaukee, WI** Richmond, VA	Bakersfield, CA			Anderson, IN Appleton, WI Bloomington, IN Green Bay, WI Indianapolis, IN Janesville, WI Kenosha, WI Kokomo, IN* Lafayette, IN Madison, WI Milwaukee, WI Muncie, IN Racine, WI Rockford, IL Sheboygan, WI Terre Haute, IN WI 9
Pacific Telesis	Dallas, TX* St. Louis, MO*	Atlanta, GA Detroit, MI Flint, MI Grand Rapids, MI Lansing, MI Toledo, OH	Athens, GA Lima, OH Saginaw, MI Muskegon, MI			
Southwestern Bell		Baltimore, MD Boston, MA Chicago, IL Gary, IN Washington, DC Worcester, MA			MA 2	Champaign, IL Springfield, IL Decatur, IL Bloomington, IL DE 1 IL 4 IL 5 IL 6 VA 10 VA 11 VA 12 WV 4
US West	San Diego, CA Gulf of Mexico***	Springfield, IL*	Champaign, IL* Decatur, IL* Bloomington, IL*			

Sources: Company annual reports; FCC, STATUS OF MSA CELLULAR MARKETS (May 13, 1991); FCC, STATUS OF RSA CELLULAR MARKETS (May 13, 1991); PAUL KAHAN ASSOCS., 1991 CELLULAR TELEPHONE ATLAS (Feb. 1991); PHILLIPS PUBLISHING, INC., 1991 MOBILE COMMUNICATIONS DIRECTORY (1991). BellSouth, Graphic Scanning Complete Merger, PR Newswire, Sept. 17, 1991.

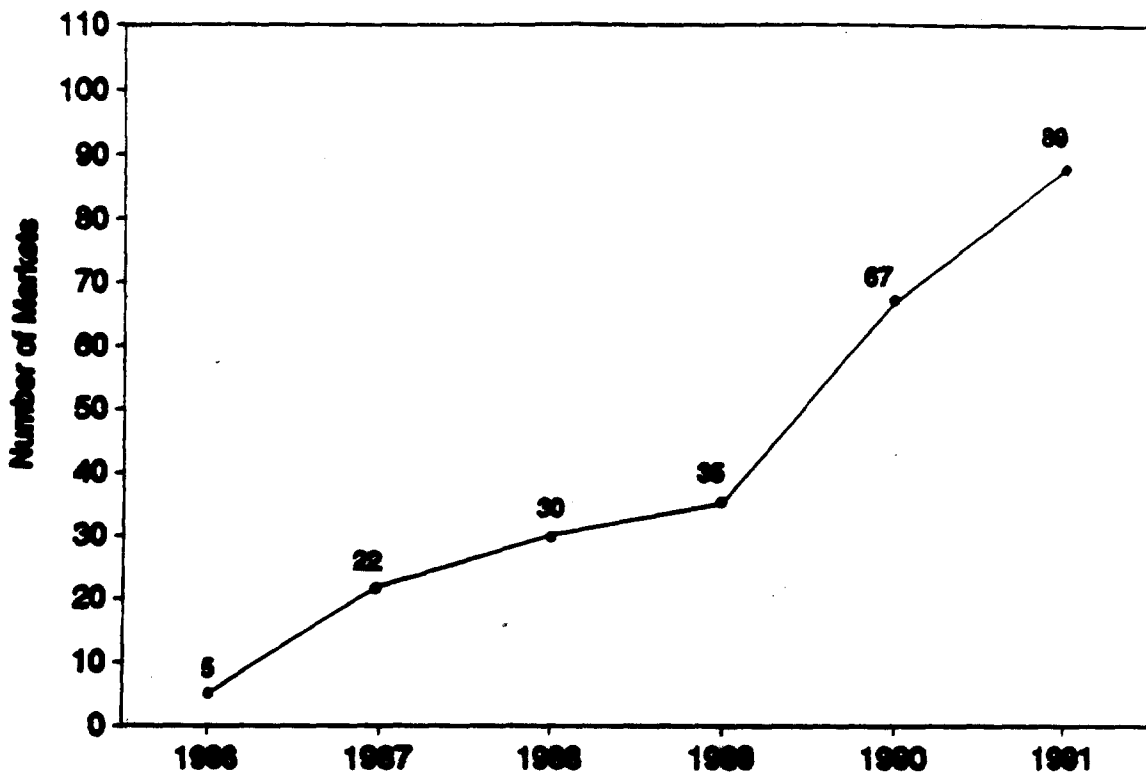
Notes: PacTel's recently completed joint venture with Cellular Communications, Inc., will consolidate ownership of their Michigan and Ohio properties. Pacific Telesis and CCI Form Cellular Joint Venture, UTILITIES FORTNIGHTLY, Aug. 30, 1990; PacTel and McCaw Propose to Form Cellular Clusters Through Joint Venture, BUSINESS WIRE, Aug. 30, 1991. PacTel's joint venture with McCaw will increase its presence in Kansas City and Missouri. Pacific Telesis and CCI Form Cellular Joint Venture, UTILITIES FORTNIGHTLY, Aug. 30, 1990; PacTel and McCaw Propose to Form Cellular Clusters Through Joint Venture, BUSINESS WIRE, Aug. 30, 1991. Ameritech expects to complete the acquisition of CyberTel in 1991, giving it control of non-wireline licenses in St. Louis and several Missouri and Illinois RSAs.

* Minority interest in system.

** Shared control in system.

*** In 1998 US West sold its interest in this service area to Roanoke Cellular. NETWORK WORLD, July 4, 1998, at 11.

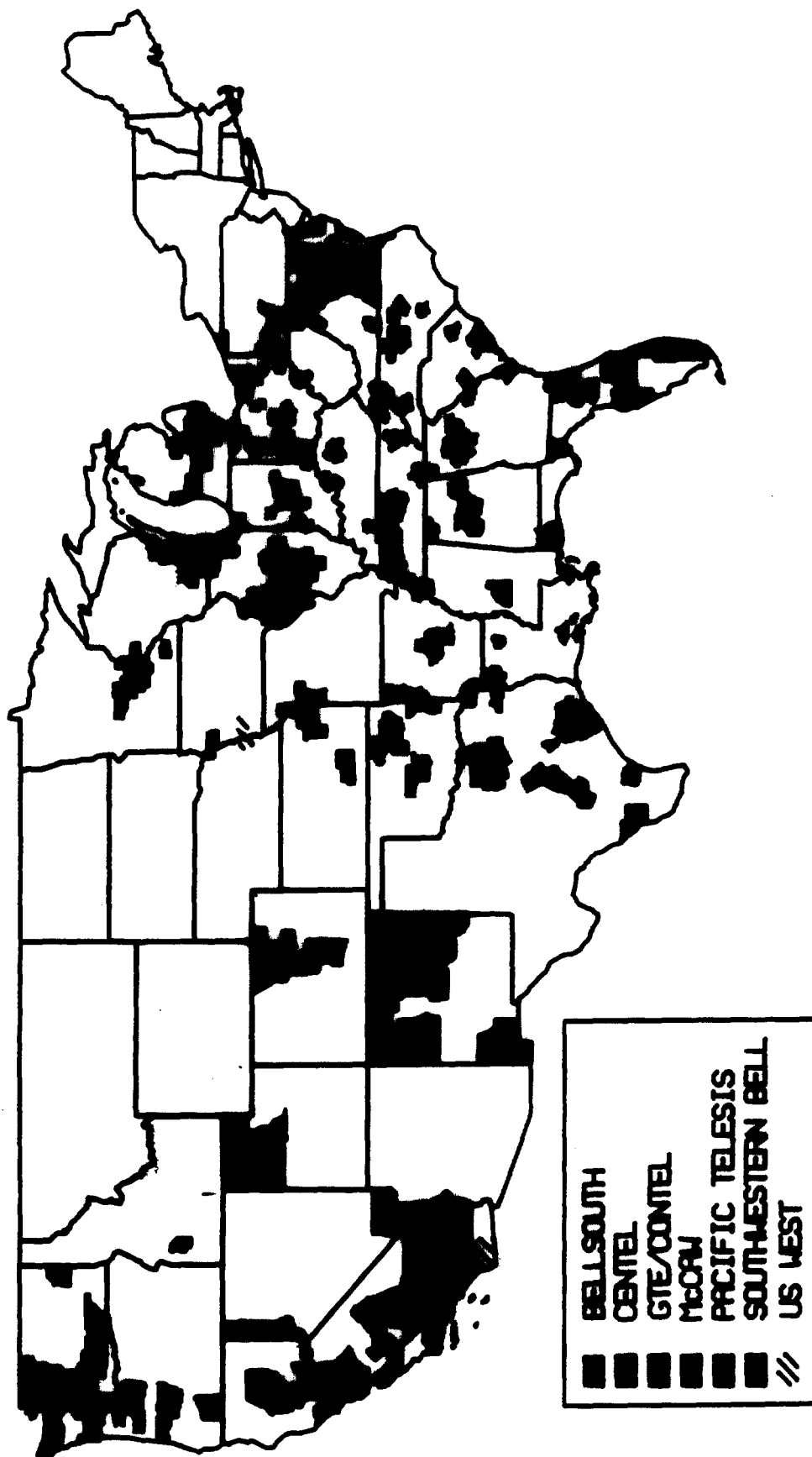
Figure 1.6. Telco vs. Telco Competition.¹⁴⁶



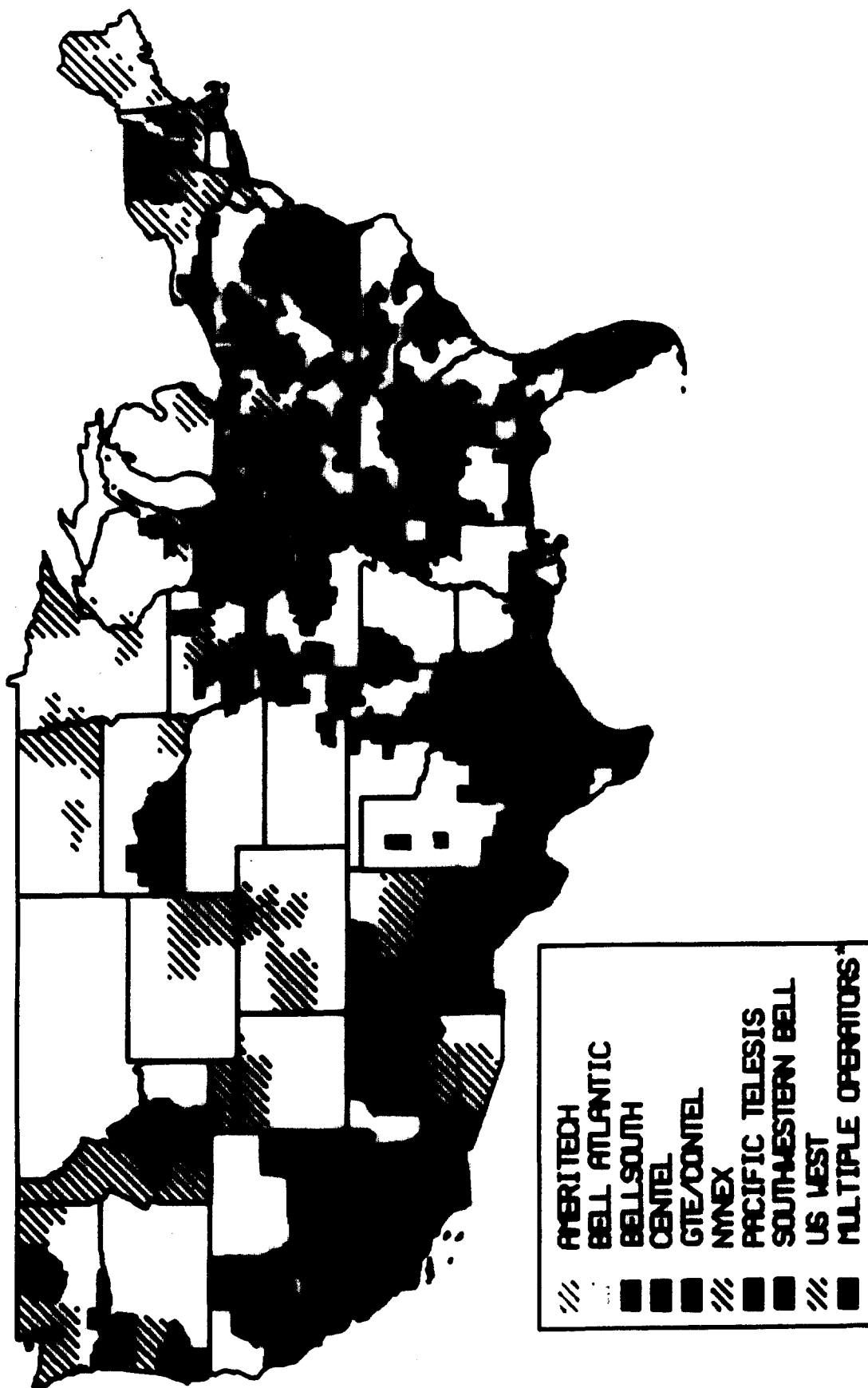
Telcos are, of course, in an unusually good position to assess the risk of anticompetitive conduct by incumbent telcos operating wireline cellular licenses. As indicated by their willingness to acquire out-of-region properties, many telcos have apparently concluded that the anticompetitive risk is small.

National maps reveal a technicolor patchwork of competing interests on the wireline and non-wireline sides. Maps 1.13, 1.14. As discussed in the following chapter, geographic boundaries between service areas are fast eroding, and all major providers are aiming to develop regional or national services, through a combination of their own facilities and other providers'. As geographic divisions disappear from this checkerboard array of interests, competition will grow all the more intense.

¹⁴⁶Sources: FCC, STATUS OF MSA CELLULAR MARKETS (Aug. 7, 1991); FCC, STATUS OF RSA CELLULAR MARKETS (Oct. 2, 1991); CTIA, STATE OF THE CELLULAR INDUSTRY (1991). Service areas in which two telcos compete, but in which one or both have a non-managing interest, are not reflected in the figures.



Map 1.13. Non-wireline Cellular Licenses Held by Various Providers.



Map 1.14. Wireline Cellular Licenses Held by Various Providers.*

*The FCC partitioned the B Block of numerous RSAs resulting in several wireline providers in a single service area.

2. COMMUNITIES OF INTEREST

Competition in any market is determined in part by geographic scope. Other things being equal, the larger the market, the more competition there is likely to be. Geographic scope depends on a variety of factors. Where is a product or service bought? Where is it sold? How do cost, technology, and regulation determine which consumers can do business with which providers? For landline telephone services, the answers to these questions have been thought to be fairly evident and straightforward. Radio services, however, present a fundamentally different and more complex picture.

Traditional, landline telephone service is still literally bound to, if not buried in, the earth. Phone service stretches as far as the telephone cord. The service can be used only by people who are stationary. Users of this kind of service tend to live or work in well-defined geographic communities, which comprise a natural "local" market. Service providers develop their operations accordingly.

The entire purpose of mobile services, however, is to cut the landline umbilical. Radio licenses issued by the FCC do of course specify the permitted power and range for the transmitted signal with great particularity. But areas spanning the entire country have now been licensed, and the technologies and standards for integrating adjacent systems have been perfected. As discussed in this chapter, the FCC has long anticipated and promoted the development of seamless, nationwide radio service. That is the service that customers want. And that is the service that all providers not bound by divestiture decree restrictions are rushing to provide.

Regulatory Policies

The early metropolitan paging services typically covered a 25-mile radius served by a single transmitter broadcasting at authorized power.¹ Since the early 1980s, the FCC has consistently expanded the number of frequencies available for paging.² This allowed paging companies to obtain more easily frequencies in adjacent areas, thereby facilitating geographic expansion. In 1983, the FCC authorized FM radio stations to use portions of their spectrum to transmit other information.³ Some paging companies then expanded the geographic scope of their coverage by transmitting the same signals over

¹*FM Subcarriers Employed; Diversicom Introduces Nationwide Paging Service Using Satellite* COMMUNICATIONS DAILY, Oct. 10, 1985, at 4.

²See, for example, Amendment of Parts 2 & 22 of the Commission's Rules to Allocate Spectrum in the 920-941 MHz Band & to Establish Other Rules, Policies & Procedures for One-Way Paging Stations in the Domestic Pub. Land Mobile Radio Serv., 89 F.C.C.2d 1337 (1982). See also TABLE 1.1.

³Amendment of Parts 2 & 73 of the Commission's Rules Concerning Use of Subsidiary Communication Authorizations, 53 Rad. Reg. 2d (P & F) 1519 (May 19, 1983); see also Black, *FCC Opens Doors to New FM Services*, ASSOCIATED PRESS, Apr. 7, 1983. Nonbroadcast services such as paging had been forbidden on FM before then. See Feldt, *Nationwide Paging to Use FM Subcarriers*, ELECTRONICS, May 31, 1984 at 75.

many local FM stations; this enabled customers equipped with frequency-scanning pagers to receive messages from any nearby transmitter. Then in May, 1984, the FCC culminated a three year process by deciding to select by lottery three licensees to receive spectrum for nationwide paging networks.⁴ This allocation set the stage for nationwide service to single frequency pagers.

The FCC has recognized other mobile-service communities of interest that transcend metropolitan areas. By 1981, for example, the FCC had received requests from Airfone⁵ and Aeronautical Radio⁶ to assign new spectrum for air-to-ground radio telephone service.⁷ Already at that time, over a million people spent approximately 1.7 million hours each work day in commercial aircraft; over 80 percent were business travelers and thus likely consumers of communications services.⁸ In 1988, the Commission finally decided to initiate a proceeding to allocate some of the requested spectrum.⁹ The Commission noted that Airfone's earlier operations under an experimental license had proved "highly attractive to consumers."¹⁰ A single technical development -- "seatphones" -- had tripled the number of calls placed.¹¹

Perhaps more than for any other mobile service, licensing has defined the initial geographic bounds of cellular telephone service. But the FCC, again, has consistently worked to eliminate these bounds as soon as practicable. In its first major cellular order issued in 1981, the FCC left it entirely to the individual licensee applicant to define the

⁴Amendment of Parts 2 & 22 of the Commission's Rules to Allocate Spectrum in the 928-941 MHz Band & to Establish Other Rules, Policies & Procedures for One-Way Paging Stations in the Domestic Pub. Land Mobile Radio Serv., 97 F.C.C.2d 900, 910-911 (1984).

⁵Airfone filed its petition on October 25, 1979 (RM-3534). Frequency Allocation for a Public Air-Ground Telephone Sys., 48 Fed. Reg. 12,253, 12,254 (1983).

⁶Aeronautical Radio filed its petition on April 3, 1981 (RM-3885). 48 Fed. Reg. at 12,254.

⁷48 Fed. Reg. 12,253. Both Airfone and Aeronautical Radio had filed for and received authorization to test equipment each was developing for its public air-ground telephone system. *Id.* at 12,254. As far back as 1957, the Commission authorized experimental air-ground radiotelephone service. Reallocation of Certain Fixed, Land Mobile & Maritime Mobile Bands, 24 Fed. Reg. 9,937, 9,937-9,938 (1959).

⁸48 Fed. Reg. at 12,254.

⁹Amendment of the Commission's Rules Relative to Allocation of the 848-851/894-896 MHz Bands, 3 FCC Rcd 2438, 2437 (Apr. 27, 1988); Amendment of the Commission's Rules Relative to Allocation of the 848-851/894-896 MHz Bands, 5 FCC Rcd 3861 (June 15, 1990).

¹⁰3 FCC Rcd at 2438 n.7. Over one million calls had been placed in 1987, though only 700 aircraft were equipped with the phones. Airfone projected "dramatic" further growth. *Ibid.*

¹¹*Ibid.* The FCC allocated 4 MHz for a common carrier air-ground telephone service in 1990. 5 FCC Rcd 3861.

"cellular geographic service area" ("CGSA") it proposed to serve.¹² The Commission emphasized that "nationwide availability of service" was "a primary goal," and that "a major basis of comparison [among license applicants] will be the geographic area that an applicant proposes to serve."¹³ Such things as metropolitan areas, highways, "and areas likely to have high mobile usage characteristics" were noted only secondarily, as "other significant factors to be considered."¹⁴

A year later, however, the FCC concluded that this approach would be too cumbersome for the Commission to administer.¹⁵ It adopted, instead, the "standard metropolitan statistical area" ("SMSA" or "MSA") to define the area in which a single license would authorize the operation of one set of transmitters.¹⁶ The SMSAs, defined by the Office of Management and Budget, were based on the federal government's population estimates of July 1, 1978. The Commission expressly stated, however, that it did not intend to limit any operator's service to a single SMSA, and that there would be "no bar to the number of SMSAs for which an applicant may seek a license."¹⁷ The FCC emphasized

¹²An Inquiry Into the Use of the Bands 825-845 MHz & 870-890 MHz for Cellular Communications Sys., 89 F.C.C.2d 469, 509 (1981).

¹³*Id.* at 502.

¹⁴*Ibid.*

¹⁵An Inquiry Into the Use of the Bands 825-845 MHz & 870-890 MHz for Cellular Communications Sys., 89 F.C.C.2d 58, 88-67 (1982). "An SMSA-based service area," the Commission explained, "relieves us of having to compare applications representing different territorial configurations covering different major urban areas." *Ibid.* As the Commission further elaborated: "It is not farfetched that, absent such a provision, a series of applications in the Northeast Corridor could overlap to such a degree as to dictate a large comparative hearing with thirty or forty applicants arguing over the scope of their CGSAs. We do not want that to occur." *Id.* at 87.

¹⁶In some instances, the Commission also grouped together two or more SMSAs to create "service areas more closely aligned with actual mobile service marketing areas." 89 F.C.C.2d at 88. In 1982, the Commission dropped the SMSA standard for CGSAs in New England, determining that New England service areas would be based on "New England county metropolitan areas" ("NECMAs"). NECMAs covered larger areas and more closely paralleled natural markets in New England than did SMSAs. An Inquiry Into the Use of the Bands 825-845 MHz & 870-890 MHz for Cellular Communications Sys., 90 F.C.C.2d 571, 579 (1982).

¹⁷89 F.C.C.2d at 88; Amendment of the Commission's Rule to Allow the Selection from Among Mutually Exclusive Competing Cellular Applications Using Random Selection or Lotteries Instead of Comparative Hearings, 98 F.C.C.2d 175, 218 (1984).

that after a cellular license was granted it could otherwise be bought and sold freely,¹⁸ and thereafter integrated as license holders saw fit.¹⁹ The FCC also stated that it would entertain applications to enlarge the service areas it had prescribed by combining two or more SMSAs.²⁰

In many subsequent rulings, the FCC has recognized that mobile service markets may extend far beyond the radio signal contours specified in individual radio licenses.²¹ In a 1984 order establishing a lottery system for granting cellular licenses, for example, the Commission acknowledged that "every proposed boundary would to at least some extent be arbitrary, and would restrict the ability of cellular system designers to propose service to natural markets and to respond to local market characteristics."²² The Commission therefore left applicants considerable freedom to define for themselves the geographic scope of the territory they proposed to serve.²³ In a 1988 ruling, the Commission likewise took pains to avoid "unnecessarily limit[ing] the ability of MSA licensees and RSA grantees to construct regional cellular systems made up of existing MSA systems and either all or a portion of planned RSA systems."²⁴ The Commission explained: "We * * * recognize that despite our efforts to align the RSA boundaries as

¹⁸As the Commission explained in 1988:

the wireline/nonwireline dichotomy is in large part an application processing tool. * * * The Commission sought by the set-aside to give both wireline and nonwireline eligibles an opportunity to become involved in providing cellular service. * * * Thus, the transfer of control of a nonwireline franchise to a wireline carrier, or vice versa, is not contrary to the Commission's set-aside policy.

Applications of James F. Rill, Trustee for Comsat Inc. & Pacific Teleseals Group, 60 Rad. Reg. 2d (P & F) 583, 593-594 (May 27, 1988); see also Applications of Advanced Mobile Phone Serv., Inc., Cotel Mobilcom, Inc., & GTE Mobilnet of Los Angeles, Inc., 93 F.C.C.2d 693, 692, 693 (1983).

¹⁹The Commission acknowledged that while single-operator service in adjacent SMSAs might well make sense, the administrative convenience of processing applications one SMSA at a time would prevail.

²⁰98 F.C.C.2d at 67.

²¹At least one major state PUC -- California's -- has reached similar conclusions, expressly finding that McCaw's development of an integrated regional cluster was in the public interest. Joint Application of McCaw Communications of Santa Rosa, Inc. & Cegal Cellular Communications Corp. for Authorization to Acquire Control of Cegal Cellular Communications Corp., 36 C.P.U.C.2d 588 (1990) (1990 Cal. PUC LEXIS 105, at *9-*10).

²²98 F.C.C.2d at 207.

²³*Id.* at 207-208. The Commission reiterated its "high regard [for] allowing cellular applicants to design their systems in response to market forces" and "attempted to avoid adopting standards that would unnecessarily restrict that flexibility." *Id.* at 212.

²⁴Amendment of the Commission's Rules for Rural Cellular Serv., 4 FCC Rcd 2440, 2444 (May 18, 1988)

closely as possible with regional economic boundaries, there will be many cases in which further adjustments will be necessary.²⁵

The coalescence of markets for radio services has only recently become practicable and important, as the FCC's licensing has been completed. The first licenses issued covered only the 30 largest SMSAs, the next batch covered another 276 SMSAs, and only then were licenses issued for 428 rural service areas ("RSAs").²⁶ By year-end 1984, the FCC had licensed cellular systems in only 32 metropolitan areas, and in no rural areas. **FIGURE 2.1, MAP 2.1(A)**. By 1987, it had issued licenses in 206 metropolitan areas.²⁷ **MAP 2.1(B)**. It was not until 1989 that the FCC had finally issued at least one license in all 306 SMSAs nationwide. The issuance of licenses for rural areas did not even begin until 1989, and most of the licenses were issued only in 1990. **TABLE 2.1**. Those rural service areas include 25 percent of the U.S. population, 80 percent of the nation's land,²⁸ and over 80 percent of the interstate highway system.²⁹ In December 1990, the FCC awarded construction permits for cellular systems in the final two of the country's 428 rural service areas.³⁰ **MAP 2.1(C)**. At year end, approximately 150 RSAs (35 percent) were offering cellular service.³¹ Over 700 (90 percent) of the total licenses

²⁵*Ibid.*

²⁶Applications for the first batch of metropolitan service areas were accepted through June 7, 1982. U.S. DEPT OF COMMERCE, A COMPETITIVE ASSESSMENT OF THE U.S. CELLULAR RADIOTELEPHONE INDUSTRY 9 (1988). As of December 1982, when comments on the decree were being filed with the decree court, the Commission had received 588 applications for the 69 largest MSAs, of which 464 were from non-wireline carriers and 122 were from wireline carriers. Advanced Mobile Phone Service, Inc. ("AMPS"), AT&T's cellular communications subsidiary, filed 86 of the 122 wireline applications. Reply Comments of Amicus Curiae Federal Communications Commission - On Application of the American Telephone and Telegraph Company and the Bell System Operating Companies for Approval of Exchange Areas or Local Access and Transport Areas (LATAs) Established Pursuant to the Modification of Final Judgment at 3, United States v. Western Elec. Co., No. 82-0192 (D.D.C. Dec. 15, 1982) ("FCC Reply").

²⁷It was not until 1988 that the FCC began its lottery allocation process for MSAs 91 to 306. The Commission received almost 100,000 applications for those licenses, plus an additional 288,000 applications for RSA licenses. The 428 RSAs average 150,000 people per area. CTIA, STATE OF THE CELLULAR INDUSTRY 62 (Spring 1990).

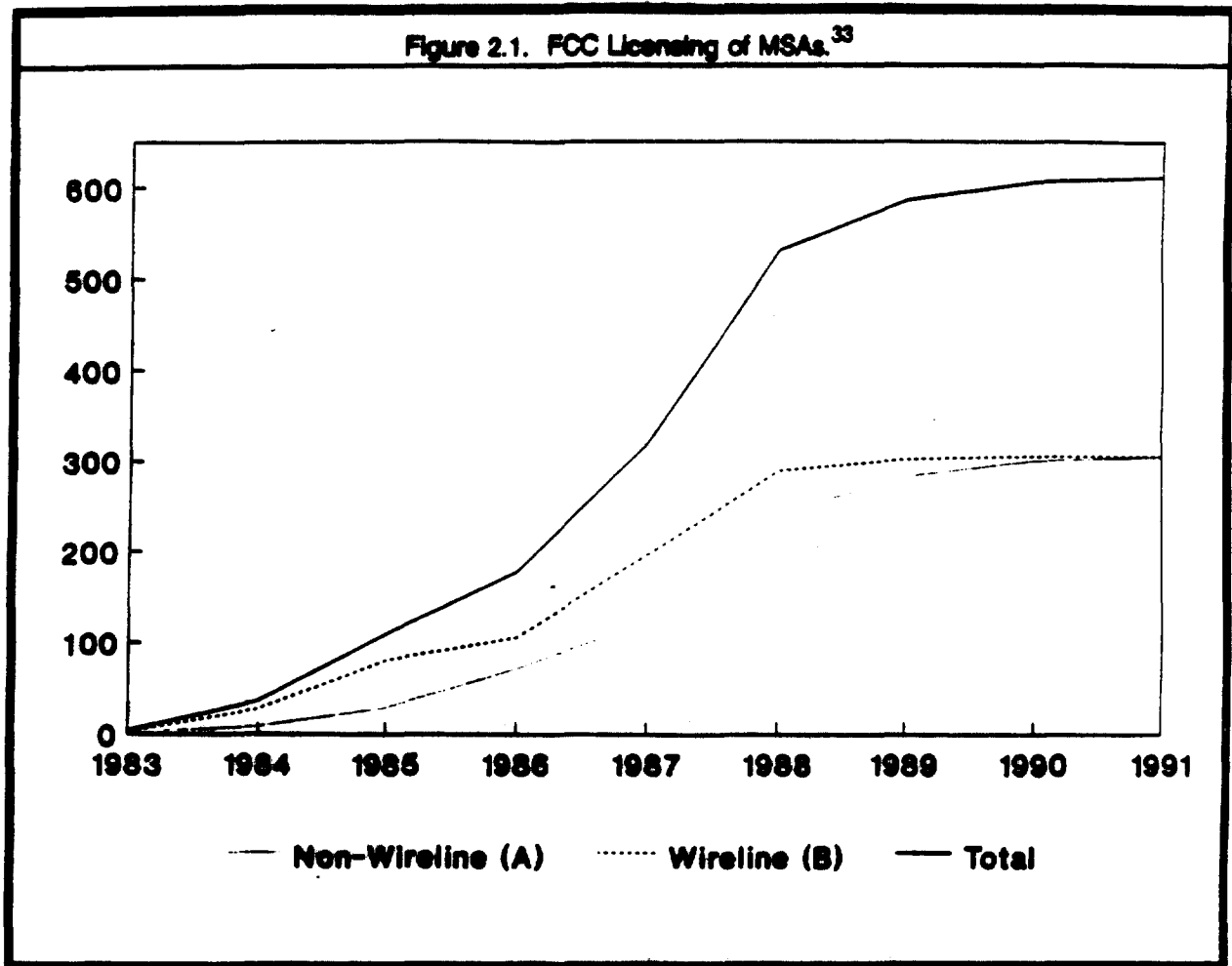
²⁸Nationwide Cellular Phone Service in View, CHRISTIAN SCIENCE MONITOR, Dec. 28, 1980, at 9.

²⁹Cutback in Cellular Telephone Competition; Rural Cellular Telephone Competition Jeopardized by House Committee Report, BUSINESS WIRE, Nov. 17, 1987. The first commercial service in an RSA was offered by GTE on the Hawaiian island of Kauai in August 1988. GTE Mobilnet Introduces the Nation's First "Rural Service Area" (RSA) to Provide Cellular Calling, PR NEWswire, Aug. 1, 1988.

³⁰Nationwide Cellular Phone Service in View, CHRISTIAN SCIENCE MONITOR, Dec. 28, 1990, at 9. The permits require that the systems be operational within 18 months. *Ibid.*

³¹RSA Milestone Reached, CELLULAR INDUSTRY REPORT, Jan. 1991, at 11. However, neither construction permits nor licenses had been awarded in 72 non-wireline and 4 wireline RSAs as of May 1991. FCC STATUS OF RSA CELLULAR MARKETS (May 13, 1991).

granted (two licenses per RSA) are expected to be on line by the end of 1991, and 834 (97 percent) by the end of 1992.³²



As the licensing process has proceeded, the importance of regulatory considerations in defining geographic service areas has declined. In 1984, regulation confined cellular service to small-geographic patches on a continent where service was the exception not the rule. In the six years since, the license map has been filled in completely, with at least one operational system in each service area. MAP 2.1(C). The many market boundaries once created by the fact that the licensing process was still underway have disappeared. In the last year or two, market forces have finally become preeminent in defining the geographic scope of the cellular market.

³²EMCI, THE CELLULAR MARKETPLACE: 1990, at 132 (1990) (Table IX-2 gives the projected rollout of cellular systems for RSAs).

³³Source: FCC, STATUS OF MSA CELLULAR MARKETS (May 13, 1991).